CLAIMS

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1. Circuit for controlling the power supply voltage of an electric motor, including means for measuring a difference between a mains voltage (V1) and a reference voltage (Vp), and means (11-14, 17) for generating an alternating correction voltage (V2) whose frequency is equal to the frequency of the mains voltage (V1) and which is phase-shifted with respect to said mains voltage (V1), characterized in that the phase shift between the mains voltage and the correction voltage is proportional to the difference between the mains voltage and the reference voltage, and said correction voltage (V2) is added to the mains voltage (V1).

2. Circuit according to Claim 1, characterized in that said means for generating said correction voltage comprise a full bridge consisting of four controlled switches (11, 12, 13, 14) whose switching generates the correction voltage (V2), said correction voltage being a square-wave voltage, and a control logic (17) for causing the switching of said controlled switches (11, 12, 13, 14), a virtually continuous voltage source being located in one direct-current branch (18) of said full bridge.

3. Circuit according to Claim 1 or 2, characterized in that it comprises a storage device (19) for storing reactive energy of the motor supplied by said circuit, said storage device (19) supplying energy to the means for generating the correction voltage (V2).

4. Circuit according to Claim 2 and 3, characterized in that said storage device comprises a capacitor located in the direct-current branch (18) of the full bridge.

5. Circuit according to Claim 2 at least, characterized in that said control logic comprises means (21) for generating a signal (B, C) indicating the phase of the mains voltage (V1), means for comparing a signal proportional to the mains voltage (V1) with a reference value (Vp) and for generating an error signal (Verr), comparator means (29, 33) for generating a signal (F, G) which is phase-shifted with respect to said mains voltage (V1) by an amount proportional to said error signal (Verr), and means (33) for obtaining, from said phase-shifted signal, a signal (H; I) for switching the controlled switches.

6. Circuit according to Claim 5, characterized in that said control logic comprises a zero-crossing detector (21) which generates a signal in phase with the mains voltage (V1), a pair of ramp generators (23, 27) to whose inputs is applied the signal generated by the zero-crossing detector (21) and an inverted signal, a pair of comparators (29, 31), to a

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first input of which is applied the output signal of the two ramp generators (23, 27) and to a second input of which is applied an error voltage (Verr) proportional to the difference between the mains voltage (V1) and the reference voltage (Vp), and a flip-flop (33) to whose set and reset inputs are applied the output signals of said two comparators (29, 31), the output of said flip-flop being used for switching said controlled switches.

7. Electric motor (3) comprising means of power supply at a controlled voltage (Vm), characterized in that said power supply means include a circuit according to one or more of claims 1 to 6.

8. Electric motor according to claim 7, characterized in that it is a single-phase asynchronous motor.

9. Method for supplying an electric motor (3) with a controlled voltage (Vm), including the step of generating a low alternating correction voltage (V2), whose frequency is equal to a supply voltage (V1) and which is phase-shifted with respect to said supply voltage, characterized in that said correction voltage is phase-shifted with respect to said supply voltage by a value proportional to the difference between the supply voltage (V1) and a reference voltage (Vp).

10. Method according to claim 9, characterized by adding said correction voltage (V2) to said supply voltage (V1).

11. Method according to Claim 9 or 10, characterized in that said correction voltage (V2) is generated by means of the inductive energy of the motor (3).

12. Method according to Claim 9 or 10 or 11, characterized in that said correction voltage (V2) is a square-wave voltage.

13. Method according to one or more of Claims 9 to 12, characterized by supplying said motor by means of a full bridge of controlled switches (11, 12, 13, 14), by arranging a substantially continuous voltage supply (19) in one direct-current branch (18) of said full bridge, and by modifying the phase of the switching of said switches as a function of said difference between the supply voltage (V1) and the reference voltage (Vp).

14. Method according to Claims 11 and 13, characterized in that said substantially continuous voltage source (19) consists of a capacitor (19) which is charged by means of the inductive energy of said motor.

15. Method according to Claim 13 at least, characterized by: generating a signal (B, C) indicating the phase of the mains voltage (V1); comparing a signal proportional to the mains voltage (V1) with a

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reference value (Vp) and generating an error signal (Verr) proportional to the difference between the mains voltage and the reference value; generating a signal (F, G) which is phase-shifted with respect to the mains voltage (V1) by an amount proportional to the error signal (Verr); obtaining a signal (H; I) for switching the controlled switches (11, 12, 13, 14) from said phase-shifted signal.

16. Method according to Claim 15, characterized by: generating a signal (B) detecting the zero-crossing of the mains voltage (V1) and a corresponding inverted signal (C); generating two corresponding ramp signals (D, E); comparing said ramp signals with said error signal (Verr) and generating two comparison signals (F, G); and generating the signal (H; I) for switching the controlled switches (11, 12, 13, 14) from the comparison signals (F, G).

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